

## Amendments to the Claims

- 1 1. (currently amended) A method for transmitting an input stream of  
2 symbols in a multiple-input / multiple-output wireless communications  
3 system including  $M$  subgroups of transmitting antennas, comprising:  
4     selecting, according to channel conditions of the multiple-input /  
5     multiple-output wireless communications system,  $L$  subgroups of the  $M$   
6     subgroups of antennas, where  $L < M$ ;  
7     demultiplexing, the input stream into  $L$  substreams, there being one  
8     substream for each one of  $L$  selected subgroups of antennas;  
9     adaptively modulating and coding each of the  $L$  substreams to a  
10 maximum data rate while achieving a predetermined performance on an  
11 associated channel used to transmit the substream; and  
12     space-time transmit diversity encoding each of the  $L$  coded  
13 substreams into a set of output streams, there being one output stream in  
14 each set for each antenna of each one of the  $L$  subgroups of antennas; and  
15     transmitting the set of output streams using the  $L$  subgroups of  
16 antennas.
  
- 1 2. (original) The method of claim 1, further comprising:  
2     feeding back, from a receiver, channel conditions; and  
3     selecting the  $L$  substreams to be produced by the demultiplexing  
4     according to the channel conditions.

- 1    3. (original) The method of claim 2, in which the channel conditions
  - 2    measure a signal to interference plus noise ratio of the output streams
  - 3    received in the receiver.
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- 1    4. (original) The method of claim 1, in which the adaptive modulation and
  - 2    coding depends on the number  $L$  of the substreams.
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- 1    5. (original) The method of claim 1, in which  $L$  is zero to increase an overall
  - 2    capacity of the system including a plurality of receivers.
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- 1    6. (original) The method of claim 1, in which the adaptive modulating and
  - 2    coding, further comprises:
    - 3        coding each substream;
    - 4        interleaving each coded substream; and
    - 5        symbol mapping each interleaved substream.
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- 1    7. (original) The method of claim 1, further comprising:
    - 2        demultiplexing each output stream into a plurality demultiplexed
    - 3        output streams;
    - 4        multiplying each of the plurality of demultiplexed output streams by
    - 5        an orthogonal variable spreading factor;
    - 6        adding the demultiplexed output streams, for each ouput stream, after
    - 7        multiplication into a summed output stream corresponding to each output
    - 8        stream; and
    - 9        multiplying each summed output stream by a scrambling code.

- 1    8. (currently amended) A system for transmitting an input stream of symbols
- 2    in a multiple-input / multiple-output wireless communications system
- 3    including  $M$  subgroups of transmitting antennas, comprising:
  - 4        a switch configured to select, according to channel conditions of the
  - 5        multiple-input / multiple-output wireless communications system,  $L$
  - 6        subgroups of the  $M$  subgroups of antennas, where  $L < M$ ;
  - 7        a demultiplexer configured to split the input stream into  $L$  substreams,
  - 8        there being one substream for each one of  $L$  of the  $L$  subgroups of antennas;
  - 9        means for adaptively modulating and coding each of the  $L$  substreams
  - 10      to a maximum data rate while achieving a predetermine performance on an
  - 11      associated channel used to transmit the substream; and
  - 12      means for space-time transmit diversity encoding each of the  $L$  coded
  - 13      substream into a set of output streams, there being one output stream in each
  - 14      set for each antenna of each one of the  $L$  subgroups of antennas.